Listing of claims:

The following listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims

1. (Currently Amended) A method for generating stimuli by an auditory prosthesis, including an array of stimulation devices, in response to an incoming acoustic signal, the method including:

determining stimulation devices to be activated within the array and activation times for those stimulation devices; ~~and~~

applying a temporal adjustment to the activation times, said temporal adjustment being derived from the amplitudes of a plurality of stimuli to be applied by proximate stimulation devices, such that activation of stimulation devices representing lower-amplitude components of the signal is delayed relative to activation of a proximate device representing a higher-amplitude component of the signal; and

generating a stimulus using one or more of the stimulation devices.

2. (Original) A method according to claim 1, wherein the auditory prosthesis is implantable in a cochlea and forms a linear array.

3. (Previously Presented) A method according to claim 1, wherein the auditory prosthesis stimulation device array is implantable in an auditory brain and forms a grid mapped to the form of a linear array.

4. (Canceled)

5. (Currently Amended) A method according to claim ~~4~~ 1, wherein the activation time of each stimulation device is temporally adjusted according to a latency function whereby, for a particular device, a temporal adjustment is applied if ~~the~~ a weighted sum of the amplitudes of proximate stimuli exceeds ~~the weighted~~ an amplitude of the stimuli to be applied by the particular device.

6. (Currently Amended) A method according to claim 5, wherein the latency function defines a Mexican-hat shape ~~centred~~ centered on the stimuli to be applied by the proximate device, with ~~the~~ a restriction of being limited to a minimum of no delay.

7. (Original) A method according to claim 6, wherein the latency function $f_x(\vec{x})$ is defined by:

$$f_x(\vec{x}) = \min(0, -2aA_x + a\sum_{\substack{y=1 \\ y \neq x}}^{N} g(y)A_y)$$

where A_x is the amplitude of a stimulation to be applied by a device x, a is a scaling factor, N is the number of devices to which the latency function is constrained, and $g(y)$ is amplitude of a stimuli applied by device y.

8. (Previously Presented) A method according to claim 1, wherein the stimulation device array of the auditory prostheses requires non-simultaneous stimulation to be applied by the array of stimulation devices, the method further including:

if there is temporal contention between stimulation to be applied by different devices of the array, discarding one or more lower-amplitude stimuli in favour of a higher-amplitude stimulus.

9. (Previously Presented) A method according to claim 1, wherein the auditory prostheses requires non-simultaneous stimulation to be applied by the array of stimulation devices, the method further including:

if there is temporal contention between stimulation to be applied by different devices of the array, applying a further temporal delay to one or more lower-amplitude stimuli by one or more stimulation slots in favour of a higher-amplitude stimulus.

10. (Previously Presented) A method according to claim 1, wherein array of stimulation devices includes one or more electrodes, each electrode being activated by the application of a stimulation pulse.

11. (Currently Amended) A method according to claim 1, wherein the array of stimulation devices includes one or more drug delivery units for ~~the delivery of~~ delivering drugs to a user at predetermined locations.

12. (Original) A method according to claim 11, wherein the drug delivery units are fluidic microchannels.

13. (Currently Amended) A system for generating stimuli for applications by an auditory prosthesis including an array of stimulation devices, including:

a stimulator unit for selectively activating stimulation devices in the array; and

a processor for processing received sound signals and controlling the operation of the stimulator unit using a method including:

determining stimulation devices to be activated within the array and activation times for those stimulation devices; and

applying a temporal adjustment to the activation times, said temporal adjustment being derived from the amplitudes of a plurality of stimuli to be applied by proximate stimulation devices, such that activation of stimulation devices representing lower-amplitude components of the signal is delayed relative to activation of a proximate device representing a higher-amplitude component of the signal.

14. (Previously Presented) A system for generating stimuli for applications by an auditory prosthesis as claimed in claim 22, wherein the stimulator unit acts to activate the one or more electrodes by selectively applying stimulation pulses to the electrodes.

15. (Previously Presented) A system according to claim 23, wherein the stimulator unit includes a drug storage device and a drug delivery pump for delivering drugs stored in the drug storage device through the drug delivery units to a user.

16. (Currently Amended) A processor for use in a system for generating stimuli for application by an auditory prosthesis including an array of stimulation devices, the system including a stimulator unit for selectively activating stimulation devices in the stimulation device array, the processor including digital signal processing means for processing received sound signals and controlling the operation of the stimulator unit using a method including:

determining stimulation devices to be activated within the array and activation times for those stimulation devices; and

applying a temporal adjustment to the activation times, said temporal adjustment being derived from the amplitudes of a plurality of stimuli to be applied by proximate stimulation devices, such that activation of stimulation devices representing lower-amplitude components of the signal is delayed relative to activation of a proximate device representing a higher-amplitude component of the signal.

17. (Previously Presented) A system for generating stimuli for applications by an auditory prosthesis as claimed in claim 13 wherein the activation time of each stimulation device is temporally adjusted according to a latency function whereby, for a particular device, a temporal adjustment is applied if the weighted sum of the amplitudes of proximate stimuli exceeds the weighted amplitude of the stimuli to be applied by the particular device.

18. (Previously Presented) A system for generating stimuli for applications by an auditory prosthesis as claimed in claim 17 wherein the latency function defines a Mexican-hat shape centred on the stimuli to be applied by the proximate device, with the restriction of being limited to a minimum of no delay.

19. (Previously Presented) A system for generating stimuli for applications by an auditory prosthesis as claimed in claim 18, wherein the latency function $f_x(\vec{x})$ is defined by:

$$f_x(\vec{x}) = \min(0, -2aA_x + a\sum_{\substack{y=1 \\ y \neq x}}^{N} g(y)A_y)$$

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where A_x is the amplitude of a stimulation to be applied by a device x, a is a scaling factor, N is the number of devices to which the latency function is constrained, and $g(y)$ is amplitude of a stimuli applied by device y.

20. (Previously Presented) A system for generating stimuli for applications by an auditory prosthesis as claimed in claim 13, wherein the stimulation device array of the auditory prostheses requires non-simultaneous stimulation to be applied by the array of stimulation devices, and wherein the processor is further configured to discard one or more lower-amplitude stimuli in favour of a higher-amplitude stimulus, in the event that there is temporal contention between stimulation to be applied by different devices of the array.

21. (Previously Presented) A system for generating stimuli for applications by an auditory prosthesis as claimed in claim 13, wherein the auditory prostheses requires non-simultaneous stimulation to be applied by the array of stimulation devices, and the processor is further configured to apply a further temporal delay to one or more lower-amplitude stimuli by one or more stimulation slots in favour of a higher-amplitude stimulus, in the event that there is temporal contention between stimulation to be applied by different devices of the array.

22. (Previously Presented) A system for generating stimuli for applications by an auditory prosthesis as claimed in claim 13 wherein array of stimulation devices includes one or more electrodes, each electrode being activated by the application of a stimulation pulse.

23. (Previously Presented) A system for generating stimuli for applications by an auditory prosthesis as claimed in claim 13 wherein the array of stimulation devices includes one or more drug delivery units for the delivery of drugs to a user at predetermined locations.

24. (Previously Presented) A system for generating stimuli for applications by an auditory prosthesis as claimed in claim 13 wherein the auditory prosthesis is implantable in a cochlea and forms a linear array.

25. (Previously Presented) A system for generating stimuli for applications by an auditory prosthesis as claimed in claim 13 wherein the auditory prosthesis stimulation device array is implantable in an auditory brain and forms a grid mapped to the form of a linear array.

26. (Currently Amended) A system for generating stimuli for applications by an auditory prosthesis as claimed in claim 13 wherein the processor is further configured to apply ~~a~~ the temporal adjustment to the activation time of stimulation device derived from the amplitudes of stimuli to be applied by proximate stimulation devices.

27. (Currently Amended) A processor for use in a system for generating stimuli for application by an auditory prosthesis as claimed in claim 26, wherein the processor is further configured to apply ~~a~~ the temporal adjustment to the activation time of stimulation device derived from the amplitudes of stimuli to be applied by proximate stimulation devices.

28. (Previously Presented) A processor for use in a system for generating stimuli for application by an auditory prosthesis as claimed in claim 26, wherein the processor is further configured to discard one or more lower-amplitude stimuli in favour of a higher-amplitude stimulus, in the event that there is temporal contention between stimulation to be applied by different devices of the array.

29. (Previously Presented) A processor for use in a system for generating stimuli for application by an auditory prosthesis as claimed in claim 26, wherein the processor is further configured to apply a further temporal delay to one or more lower-amplitude stimuli by one or more stimulation slots in favour of a higher-amplitude stimulus, in the event that there is temporal contention between stimulation to be applied by different devices of the array.